menclature, suffice in very many cases to determine which of the syntypes is to be made the lectotype.[16]

*Supplementary Typical Material*

Besides the type material proper there are the so-called supplementary types (plesiotypes) and typical specimens (topotypes, etc.) which have been treated in detail by Schuchert. These need not be considered here, as they are merely specimens judged, with more or less show of reason, to be like the type. Often, perhaps usually, they do not belong in the type collection at all.

To summarize briefly the different kinds of type material we have:

I. *Type Material Proper*

1. Primary types, specimens used by the author in describing a new species, including either (*a*) the true *type* (with its *clastotypes*) and *paratypes,* or (*b*) the *syntypes.*

2. Additional types, specimens taken from the type plant or from its offspring, including *merotypes, clonotypes* and *spermotypes.*

3. Substitute types, specimens selected as types when the type was not designated, including *lectotypes.*

4. Reproduced types, mechanical reproductions of types, including *phototypes, piesmotypes* and *plastotypes.*

II. *Supplementary Typical Material*

5. Supplementary types, specimens used as a basis for descriptions or figures of previously published species, *plesiotypes.*

6. Typical material, specimens (from the type locality if possible) considered to be like the type, *topotypes,* etc.

WALTER T. SWINGLE

MOSQUITOES POLLINATING ORCHIDS

EARLY in July, 1912, Miss Ada K. Dietz, who was doing research work in plant ecology at the University of Michigan Biological Station at Douglas Lake, told me that she had seen in Rees's Bog a mosquito bearing on its head two small yellow masses that looked like pollen. I went to the bog and found many mosquitoes there. In a few minutes I had caught a half dozen or more, all of them females, bearing the yellow masses. On closer examination these proved to be pollinia of the orchid, *Habenaria obtusata* (Pursh.) which was at that time abundant in the bog and in full bloom. Most of the mosquitoes carried one pollinium, some had two or three, and one had four pollinia attached to its eyes.

This orchid is small, green and inconspicuous, but very similar in the structure of its flower to *Orchis mascula,* described by Darwin in his book on the "Fertilization of Orchids," and by Müller in "The Fertilization of Flowers." Also, the complex process of pollination as described in the last named book (p. 535) for *O. mascula* might apply almost unchanged for *H. obtusata* with mosquitoes instead of bees for the pollen-bearers.

I gathered a number of the plants and a few mosquitoes that were free from pollinia and put them together in a glass aquarium jar. In a few days the mosquitoes had removed most of the pollinia from the flowers and now bore them on their eyes exactly as had those caught outside.

I did not learn the name of the mosquito concerned. It was probably not *Culex pipiens,* which is mentioned by Müller as a visitor to the flowers of *Rhamnus Frangula.* So far as I know, this is the only case reported in which mosquitoes seem to be of primary importance as agents of pollination.

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*SCIENTIFIC BOOKS*

*The New Realism: Cooperative Studies in Philosophy.* By E. B. HOLT, W. T. MARVIN, W. P. MONTAGUE, R. B. PERRY, W. B. PITKIN and E. G. SPAULDING. New York, The Macmillan Company. 1912.

*The World We Live In.* By GEORGE STUART FULLERTON. New York, The Macmillan Company. 1912.

The first of these contributions to philos-

[16] Arthur, J. C., et al., 1907, "American Code of Botanical Nomenclature," in *Bull. Torrey Bot. Club,* 34: 172–174, No. 4, April, published June 11.